

**AMENDMENTS TO THE CLAIMS:**

1. (Currently amended) A method of performing error diffusion, the method comprising the steps of:
  - simultaneously processing image data for at least two pixels in a row of pixels, said at least two pixels comprising a first group of pixels and a last pixel, said last pixel abutting a group of pixels to be processed next in said row of pixels;
  - reducing the precision of said image data to produce a modified image data word and an error word for each pixel;
  - propagating a portion of said error word for each pixel in said first group to two pixels in a next row of pixels; and
  - propagating a first portion of said error word for said last pixel to a pixel in said next row of pixels and a second portion of said error word for said last pixel to a pixel in said group of pixels to be processed next.
2. (Original) The method of Claim 1 further comprising the steps of:
  - generating a pseudo random number; and
  - wherein said propagating a portion of said error word for each pixel in said first group comprises:
    - dividing said error word into a first and a second portion;
    - subtracting said pseudo random number from said first portion to produce a first modified error word;
    - adding said pseudo random number to said second portion to produce a second modified error word; and
    - adding said first and said second modified error words to image data for a first and second pixel in said next row of pixels.
3. (Original) The method of Claim 2, where said first modified error word is added to image pixel data for a pixel directly below the pixel generating the error signal.
4. (Original) The method of Claim 2, where said second modified error word is added to image pixel data for a pixel directly below and to the right of the pixel generating the error signal.

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5. (Original) The method of Claim 1 further comprising the steps of:
  - generating a pseudo random number; and
  - wherein said propagating a portion of said error word for each pixel in said second group comprises:
    - dividing said error word into a first and a second portion;
    - subtracting said pseudo random number from said first portion to produce a first modified error word;
    - adding said pseudo random number to said second portion to produce a second modified error word;
    - adding said first modified error word to image data for a pixel in said next row of pixels; and
    - adding said second modified error word to image data for a pixel in said group of pixels to be processed next.
6. (Original) The method of Claim 1 further comprising the steps of:
  - generating a pseudo random number; and
  - wherein said propagating a portion of said error word for each pixel in said second group comprises:
    - dividing said error word into a first and a second portion;
    - adding said pseudo random number to said first portion to produce a first modified error word;
    - subtracting said pseudo random number from said second portion to produce a second modified error word;
    - adding said first modified error word to image data for a pixel in said next row of pixels; and
    - adding said second modified error word to image data for a pixel in said group of pixels to be processed next.
7. (Previously presented) The method of Claim 1 further comprising the steps of:
  - generating a first and second pseudo random number; and
  - wherein said propagating a portion of said error word for each pixel in said first

group comprises:

dividing said error word into a first and a second portion;

adding said first pseudo random number to said first portion to produce a first modified error word;

adding said second pseudo random number to said second portion to produce a second modified error word; and

adding said first and said second modified error words to image data for a first and second pixel in said next row of pixels.

8. (Original) The method of Claim 1 further comprising the steps of:

generating a first and second pseudo random number; and

wherein said propagating a portion of said error word for each pixel in said second group comprises:

dividing said error word into a first and a second portion;

adding said first pseudo random number to said first portion to produce a first modified error word;

adding said second pseudo random number to said second portion to produce a second modified error word;

adding said first modified error word to image data for a pixel in said next row of pixels; and

adding said second modified error word to image data for a pixel in said group of pixels to be processed next.

9. (Previously presented) The method of Claim 1 further comprising the steps of:

generating a first pseudo random number; and

wherein said propagating a portion of said error word for each pixel in said first group comprises:

dividing said error word into a first and a second portion;

adding said pseudo random number to said first portion to produce a first modified error word;

subtracting said pseudo random number from said second portion to

produce a second modified error word; and  
adding said first and said second modified error words to image data for  
a first and second pixel in said next row of pixels.

10. (Original) The method of Claim 1 further comprising the steps of:
  - generating a first and second pseudo random number; and
  - wherein said propagating a portion of said error word for each pixel in said second group comprises:
    - dividing said error word into a first and a second portion;
    - adding said first pseudo random number to said first portion to produce a first modified error word;
    - subtracting said second pseudo random number from said second portion to produce a second modified error word;
    - adding said first modified error word to image data for a pixel in said next row of pixels; and
    - adding said second modified error word to image data for a pixel in said group of pixels to be processed next.
11. (Original) The method of Claim 1 further comprising the steps of:
  - generating a first and second pseudo random number; and
  - wherein said propagating a portion of said error word for each pixel in said second group comprises:
    - dividing said error word into a first and a second portion;
    - subtracting said first pseudo random number from said first portion to produce a first modified error word;
    - adding said second pseudo random number to said second portion to produce a second modified error word;
    - adding said first modified error word to image data for a pixel in said next row of pixels; and
    - adding said second modified error word to image data for a pixel in said group of pixels to be processed next.

12. (Currently amended) A display system comprising:

a controller for receiving and processing pixelated image data said controller:  
simultaneously processing image data for at least two pixels in a row of pixels, said at least two pixels comprising a first group of pixels and a last pixel, said last pixel abutting a group of pixels to be processed next in said row of pixels;  
reducing the precision of said image data to produce a modified image data word and an error word for each pixel;  
propagating a portion of said error word for each pixel in said first group to two pixels in a next row of pixels; and  
propagating a first portion of said error word for said last pixel to a pixel in said next row of pixels and a second portion of said error word for said last pixel to a pixel in said group of pixels to be processed next;  
a light source for generating a beam of light along a first light path; and  
a light modulator for selectively modulating light along said first light path in response to image data signals from said controller.

13. (Original) The display system of Claim 12, said controller:

generating a pseudo random number; and  
wherein said propagating a portion of said error word for each pixel in said first group comprises:  
dividing said error word into a first and a second portion;  
subtracting said pseudo random number from said first portion to produce a first modified error word;  
adding said pseudo random number to said second portion to produce a second modified error word; and  
adding said first and said second modified error words to image data for a first and second pixel in said next row of pixels.

14. (Original) The display system of Claim 12, said controller:

generating a pseudo random number; and

wherein said propagating a portion of said error word for each pixel in said second group comprises:

dividing said error word into a first and a second portion;

subtracting said pseudo random number from said first portion to produce a first modified error word;

adding said pseudo random number to said second portion to produce a second modified error word;

adding said first modified error word to image data for a pixel in said next row of pixels; and

adding said second modified error word to image data for a pixel in said group of pixels to be processed next.

15. (Original) The display system of Claim 12, said controller:

generating a pseudo random number; and

wherein said propagating a portion of said error word for each pixel in said second group comprises:

dividing said error word into a first and a second portion;

adding said pseudo random number to said first portion to produce a first modified error word;

subtracting said pseudo random number from said second portion to produce a second modified error word;

adding said first modified error word to image data for a pixel in said next row of pixels; and

adding said second modified error word to image data for a pixel in said group of pixels to be processed next.

16. (Previously presented) The display system of Claim 12, said controller:

generating a first and second pseudo random number; and

wherein said propagating a portion of said error word for each pixel in said first group comprises:

dividing said error word into a first and a second portion;

adding said first pseudo random number to said first portion to produce a first modified error word;

adding said second pseudo random number to said second portion to produce a second modified error word; and

adding said first and said second modified error words to image data for a first and second pixel in said next row of pixels.

17. (Original) The display system of Claim 12, said controller:

generating a first and second pseudo random number; and

wherein said propagating a portion of said error word for each pixel in said second group comprises:

dividing said error word into a first and a second portion;

adding said first pseudo random number to said first portion to produce a first modified error word;

adding said second pseudo random number to said second portion to produce a second modified error word;

adding said first modified error word to image data for a pixel in said next row of pixels; and

adding said second modified error word to image data for a pixel in said group of pixels to be processed next.

18. (Original) The display system of Claim 12, said controller:

generating a first and second pseudo random number; and

wherein said propagating a portion of said error word for each pixel in said first group comprises:

dividing said error word into a first and a second portion;

adding said pseudo random number to said first portion to produce a first modified error word;

subtracting said pseudo random number from said second portion to produce a second modified error word; and

adding said first and said second modified error words to image data for

a first and second pixel in said next row of pixels.

19. (Original) The display system of Claim 12, said controller:  
generating a first and second pseudo random number; and  
wherein said propagating a portion of said error word for each pixel in said  
second group comprises:  
dividing said error word into a first and a second portion;  
adding said first pseudo random number to said first portion to produce  
a first modified error word;  
subtracting said second pseudo random number from said second  
portion to produce a second modified error word;  
adding said first modified error word to image data for a pixel in said  
next row of pixels; and  
adding said second modified error word to image data for a pixel in said  
group of pixels to be processed next.
20. (Original) The display system of Claim 12, said controller:  
generating a first and second pseudo random number; and  
wherein said propagating a portion of said error word for each pixel in said  
second group comprises:  
dividing said error word into a first and a second portion;  
subtracting said first pseudo random number from said first portion to  
produce a first modified error word;  
adding said second pseudo random number to said second portion to  
produce a second modified error word;  
adding said first modified error word to image data for a pixel in said  
next row of pixels; and  
adding said second modified error word to image data for a pixel in said  
group of pixels to be processed next.